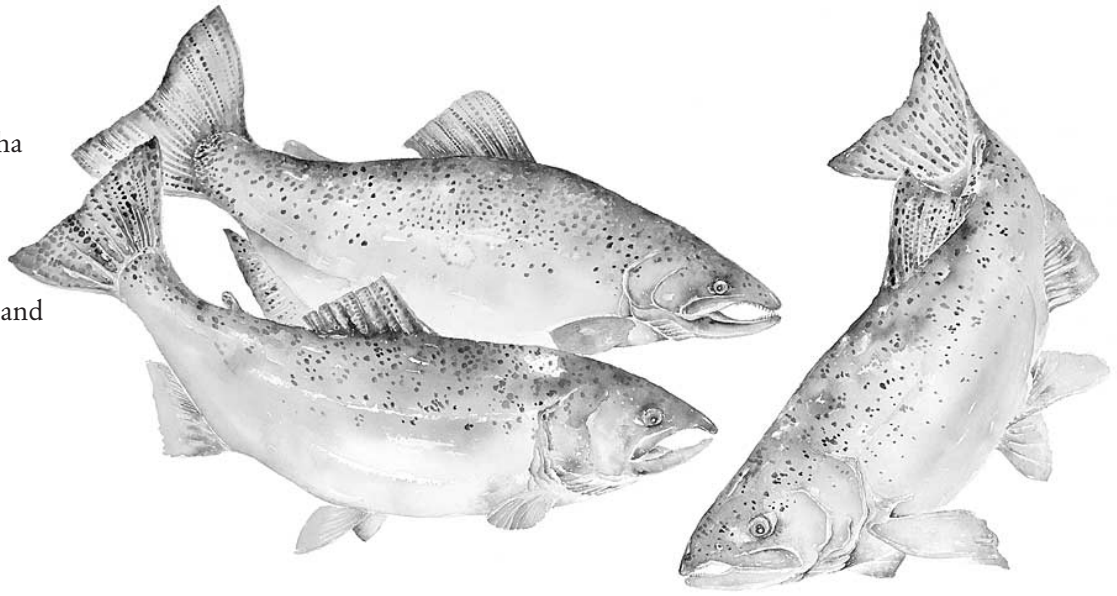
Clark County, Washington **Endangered Species Act** *Information*

Chinook Salmon



Oncorhynchus tshawytscha
Other names: king, tyee, blackmouth (immature)
Average size: 10-15 lbs, up to 135 lbs
Fall spawner; fall, spring, and summer runs

In March 1999, the National Marine Fisheries Service listed Lower Columbia River chinook as a threatened species. Because Clark County is located on the Lower Columbia River, we must take measures to protect chinook.

What are chinook?

Chinook salmon are the largest of the Pacific salmon and can range up to 58 inches in length and 135 pounds in weight, though these huge fish are rare. Adults can be recognized by their black gums and a color ranging from greenish blue to bronze or black. They also have large irregular spots on their backs, upper sides, and tails. During spawning, they become very dark.

Chinook are anadromous fish, which means they are born in freshwater, migrate to the ocean, then return to freshwater to spawn. Anadromous fish benefit from both freshwater and marine habitats. Freshwater streams have fewer predators and are safer for the development of young fish. Marine habitats have more abundant food and may support more rapid growth and larger fish.

Habitat requirements

Chinook, like all salmon, need clean, cool water with plenty of oxygen and low amounts of suspended solids and contaminants. They also need gravel and rocks to spawn. Fine sediment can be lethal to chinook. It clogs the spaces between the rocks and gravel, buries the eggs, and prevents flowing water from reaching the eggs. The oxygen-rich water allows fish to breathe beneath the gravel and also carries away any waste that the incubating embryos create. Sediment can damage the gills of adult chinook and other salmon. In extreme cases, suspended sediment can choke and suffocate fish.

Salmon also require large woody debris and deep pools in rivers to provide refuge from predators and resting places during storms. Deep pools also give chinook cool water when shallow areas warm up in the summer.

Life history

Freshwater and saltwater residence time varies among the different stocks of chinook salmon. Typically, chinook spend one or more years in freshwater, then two to four years (sometimes more) at sea. They return to freshwater and the river they were born and raised in, where they spend several months before spawning. Ocean-type chinook migrate seaward within their first year, spend two to four years relatively close to the coast, and return to freshwater a few days or weeks before spawning. Chinook are most often found in large streams or rivers with many populations spawning far inland. They

spawn between May and January. Spawning usually occurs in deep, fast water with cobble-size gravel. Average nest, or redd, sizes range between 40 and 160 square feet buried approximately 7 to 8 inches in the gravel. An average redd contains between 3,000 and 7,000 eggs.

Eggs hatch between March and April. Young chinook like to rear in side channels and other off channel habitats as well as the mainstem where they can find areas where water runs slow and cool. Here they feed on insects, salmon eggs, and small fish. As they grow, the young fish gradually move into deeper, swifter water with coarser streambed gravel.

Once they have put on enough weight and size, chinook smolts migrate to the ocean. Their return to the streams in which they were born can vary between spring, summer, and fall. The spring run usually begins in April; a summer run in July; and a fall run in November.

Why are healthy runs of wild salmonids declining?

As Clark County's human population has boomed, its fish population has plummeted. The relatively high numbers of returning salmon in 2000, while encouraging, should not be misinterpreted as a sign that everything is fine. Fish populations in our region have always fluctuated, but the overall trend continues downward. While natural phenomena such as flooding, predators, and ocean currents affect salmon populations, human activity poses by far the greatest threat to salmon survival. The effects of human activity on fish populations have been many decades in the making and will take many decades to remedy. The four main areas of human activity that threaten salmon are known as the four Hs:

- **HARVEST:** Commercial and sports fishing directly reduce fish populations.
- **HATCHERIES:** Artificial production facilities produce domesticated fish that threaten the ability of wild fish to survive when they interbreed with the wild fish.
- **HYDROPOWER:** Dams block salmon migration up and down rivers and inundate fish habitat.
- **HABITAT:** Streams, rivers, estuaries, marine waters, and surrounding flood plains are being steadily degraded by human activities that increase soil erosion, reduce the amount of woody debris in streams, raise the water temperature, add contaminants to the water, decrease water flow, and create barriers to fish passage. Diminishing habitat and loss of habitat complexity increases vulnerability to predators.

For information about salmon recovery in Clark County, contact the Clark County Endangered Species Program at (360)397-2022 or www.saveoursalmon.com.

CLARK COUNTY WASHINGTON

good for FISH good for US